USER'S MANUAL

NuPRO-E400C

VIA EDEN Half-size
Embedded Card
With VGA/LAN

NuPRO-E400C

NuPRO-E400C
Half-size CPU Board
With VGA / LAN

OPERATION MANUAL

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This operation manual is meant to assist both Embedded Computer manufacturers and end-users in installing and setting up the system. The information contained in this document is subject to change without any prior notice.

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CE NOTICE

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC NOTICE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void your authority to operate such equipment.

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INTRODUCTION

CHAPTER

1

This chapter gives you the information for NuPRO-E400C. It also outlines the System specifications.

Section includes:

- About This Manual
- System Specifications
- Safety precautions

Experienced users can skip to chapter 2 on page 2-1 for a Quick Start.

1-1. ABOUT THIS MANUAL

Thank you for purchasing our NuPRO-E400C, Half Size CPU Board enhanced with VGA/LAN, is fully PC / AT/ATX compatible. The NuPRO-E400C provides faster processing speed, greater expandability and can handle more tasks than before. This manual is designed to assist you how to install and set up the system. It contains four chapters. The user can apply this manual for configuration according to the following chapters :

Chapter 1 Introduction

This chapter introduces you to the background of this manual, and the specifications for this system. The final page of this chapter will indicate how to avoid damaging this Embedded Board.

Chapter 2 Hardware Configuration

This chapter outlines the component locations and their functions. In the end of this chapter, you will learn how to set jumper and how to configure this card to meet your own needs.

Chapter 3 Software Utilities

This chapter contains helpful information for proper installations of the VGA Utility, LAN Utility, and Flash BIOS Update. It also describes the Watchdog-timer configuration.

Chapter 4 Award BIOS Setup

This chapter indicates you how to set up the BIOS configurations.

Appendix A Expansion Bus

This Appendix introduces you the expansion bus for PC/104.

Appendix B Technical Summary

This section gives you the information about the Technical maps.

Appendix C Trouble Shooting

This section outlines the error messages and offers you the methods to solve the problems.

1-2. SYSTEM SPECIFICATIONS

- **CPU :**
  VIA Eden 400/733 MHz processors or up to 1.x GHz.
  Auto detect voltage regulator.

- **SYSTEM CHIPSET :**
  VIA VT8606, VT82C686B

- **MEMORY :**
  Up to 512MB SO-DIMM
  One 144-pin SO-DIMM socket on board.

- **CACHE :**
  Built-in CPU.

- **REAL-TIME CLOCK / CALENDAR :**
  CMOS data back up from BIOS set or BIOS default.
  Built-in VIA VT82C686B.
  External Real Time Clock (Optional).

- **BIOS :**
  PhoenixAward PnP BIOS Memory size 2 Mbytes, with VGA BIOS.
  Easy update 256KB flash EEPROM.
  Supports Green Function.
  Supports S/IO Setup.

- **KEYBOARD CONNECTOR :**
  PS/2 keyboard with mini DIN connector or one external 5-pin boxheader connector with mini DIN cable
  Supports Y-Cable.

- **MOUSE CONNECTOR :**
  PS/2 mouse connector with mini DIN connector when keyboard use external 5-pin connector.

- **BUS SUPPORT :**
  PC/104 Bus
  External PCI Bus

- **DISPLAY :**
  Built-in VIA VT8606, supports CRT, TTL & LVDS.
  Integrated S3®'s Savage4™ 2D/3D/Video Accelerator.
  Optimized Shared Memory Architecture (SMA).
  2~32 MB Frame Buffer using system memory.
  Supports simultaneous display of CRT & LCD.
  Interface:
  One 15-pin connector supports for CRT Monitor.
  One 41-pin connector support 18 bit or 24 bit panel for TTL.
  One 30-pin connector support 2x18 bit LVDS panel.

- **WATCHDOG :**
  I / O port 0443H to Enable watchdog.
  I / O port 0441H to Disable watchdog.
  Selectable for Reset / NMI Watchdog function.
  Time-out timing select 0 / 8 / 16 / 24 / 32 / 40 / 48 / 56 / 64 / 72 / 80 / 88 / 96 / 104 / 112 / 120 sec +/- 25%.

- **IDE INTERFACE :**
  One EIDE port supports Ultra DMA-100/66/33.
  One channel supports up to two devices.

- **FLOPPY DISK DRIVER INTERFACE :**
  Supports up to two Floppy Disk Drives, 3.5" and 5.25" (1.44M / 2.88M).

- **USB CONNECTOR :**
  Universal Serial Bus Connector, supports up to two USB1.1 ports.

- **LAN ADAPTER :**
  Realtek 8100BL PCI Fast Ethernet
  10/100 Base-TX PCI-BUS
  RJ-45 Jack on board.

- **SERIAL PORT :**
  Two high speed 16550 Compatible UARTs with Send / Receive 16 Byte FIFOs; COM1 for RS-232; COM2 for RS-232/422/485
  COM1 with 9-pin D-SUB connector on board
  COM2 with one 2x5-pin boxheader connector on board
  Infrared Communications port option on the COM2.

- **PARALLEL PORT :**
  Supports SPP, ECP, EPP Function mode.
  Bi-directional parallel port.

- **GREEN FUNCTION :**
  Software supported by BIOS setup.
  Hardware supported by switch control.

- **Solid-State Disk Socket :**
  Memory System DiskOnChip SSD Module support up to 384MB.

- **HARDWARE MONITORING FUNCTION :**
  Monitor CPU Voltage, CPU temperature, and Cooling Fan.

- **LED INDICATOR :**
  HDD LED: one 2-pin headpin on board
  power LED: one 2-pin headpin on board

- **DMA CONTROLLER :**
  82C37 x 2

- **DMA CHANNELS :**
  7

- **INTERRUPT CONTROLLERS :**
  82C59 x 2

- **INTERRUPT LEVELS :**
  15

- **OPERATING TEMPERATURE :**
  0 to 60°C (32°F to 140°F)

- **INPUT POWER REQUIREMENT :**
  AT power: +5V ±5%.
  +12V ±5%.
  ATX power: +5VSB ±5%.
  +5V ±5%.
  +12V ±5%.

- **BOARD DIMENSION :**
  185mm x 122mm (7.28” x 4.8”)

- **BOARD NET WEIGHT :**
  250g (0.556 lb)

1-3. SAFETY PRECAUTIONS

Follow the messages below to avoid your systems from damage:

1. Keep your system away from static electricity on all occasions.

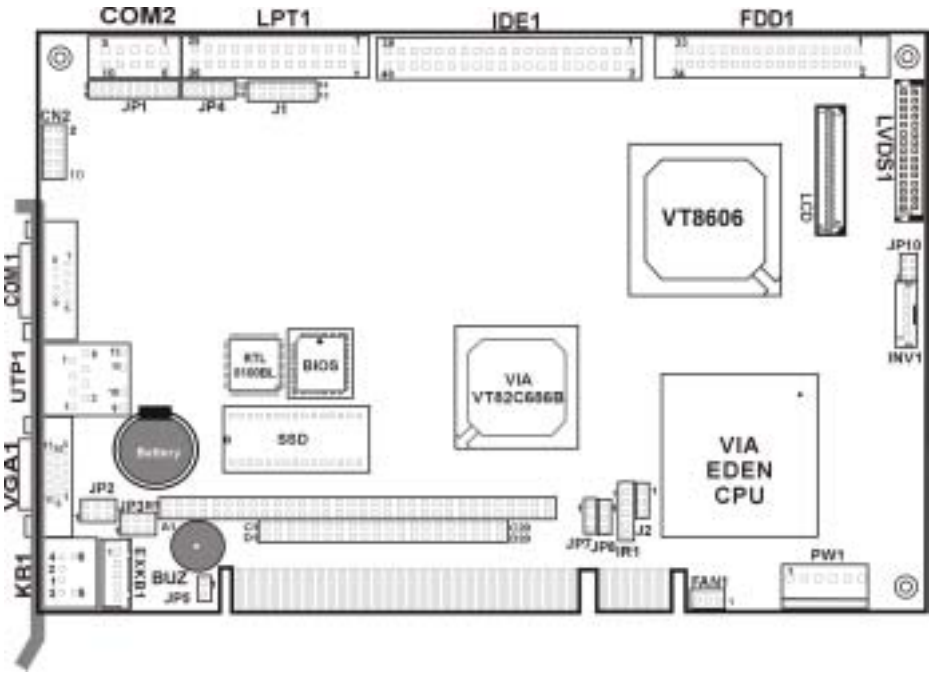
2. Prevent electric shock. Don‘t touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.

3. Disconnect power when you change any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

2-1. JUMPER & CONNECTOR QUICK REFERENCE TABLE

COM Connector	COM1, COM2
RS232/422/485 (COM2) Selection	JP1
Keyboard/Mouse Connector	KB1
Keyboard/Mouse Selection	JP2
External Speaker Connector	EXKB1
Inverter Connector	INV1
Power LED Connector	J1 (1-3)
Reset Connector	J1 (9-10)
Hard Disk Drive LED Connector	J1 (2-4)
Power Button	J1 (5-6)
External Buzzer Connector	J1 (7-8)
Fan Connector	FAN1
IrDA Connector	IR1
VGA Connector	VGA1
LCD Connector	LCD1
Universal Serial Bus Connector	CN2
Clear CMOS Selection	JP8
Floppy Disk Drive Connector	FDD1
Hard Disk Drive Connector	IDE1
Printer Connector	LPT1
NMI/Reset/Clear Watchdog	JP3
IRQ12 Release Selection	JP5
LAN Connector	UTP1
AT Power Connector	PW1
ATX Power Connector	J2
AT/ATX Power Selection	JP7
Solid-State Disk Socket	SSD
SSD Memory Mapping Selection	JP4
LVDS LCD Connector	LVDS1
LVDS Panel Power Selection	JP10

2-2. COMPONENT LOCATIONS



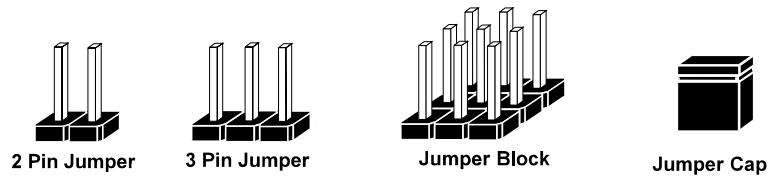
NuPRO-E400C Connector, Jumper and Component locations

2-3. HOW TO SET THE JUMPERS

You can configure your board by setting the jumpers. Jumper is consists of two or three metal pins with a plastic base mounted on the card, and by using a small plastic "cap", Also known as the jumper cap (with a metal contact inside), you are able to connect the pins. So you can set-up your hardware configuration by "opening" or "closing" pins.

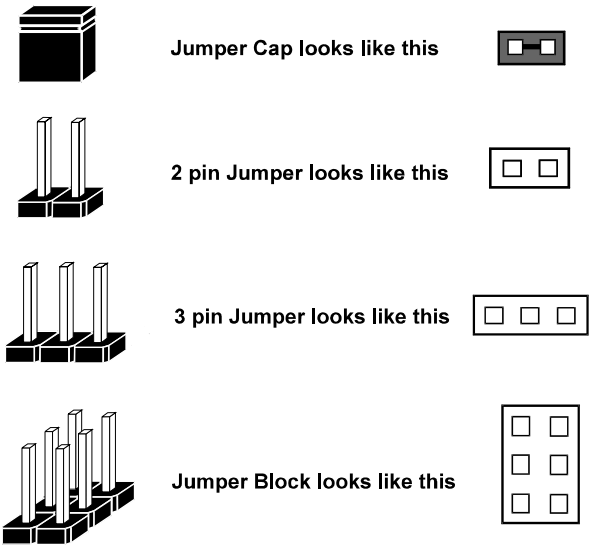
The jumper can be combined into sets that called jumper blocks. When the jumpers are all in the block, you have to put them together to set up the hardware configuration. The figure below shows how this looks like.

JUMPERS AND CAPS

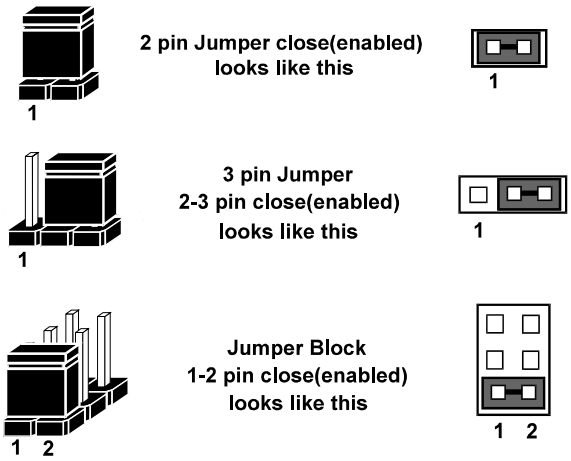


If a jumper has three pins (for example, labelled PIN1, PIN2, and PIN3), You can connect PIN1 & PIN2 to create one setting and shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagram looks like and what they represent.

JUMPER DIAGRAMS



JUMPER SETTINGS

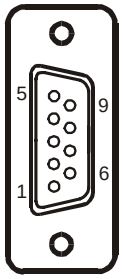


2-4. COM PORT CONNECTOR

There are two COM ports enhanced in this board namely: COM1 and COM2. COM1 is fixed for RS-232, while COM2 is selectable for RS-232/422/485.

COM1 : COM1 Connector
The COM1 Connector assignments are as follows :

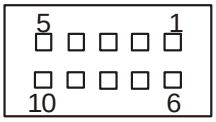
PIN	ASSIGNMENT
1	DCD
2	RX
3	TX
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI / +5V / +12V selectable
10	NC



COM1

COM2 : COM2 Connector
The COM2 Connector assignments are as follows :

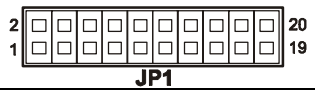
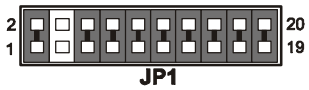
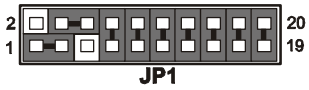
PIN	ASSIGNMENT		
	RS-232	RS-422	RS-485
1	DCD	TX-	TX-
2	RX	TX+	TX+
3	TX	RX+	RX+
4	DTR	RX-	RX-
5	GND	GND	GND
6	DSR	RTS-	NC
7	RTS	RTS+	NC
8	CTS	CTS+	NC
9	RI/+5V/+12	CTS-	NC
10	NC	NC	NC



COM 2

2-5. RS232/422/485 (COM2) SELECTION

JP1 : RS-232/422/485 Selection
COM2 is selectable for RS-232, 422, 485 function.
The jumper settings are as follows :

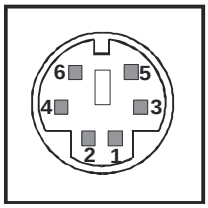
COM 2 FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
RS-232	Open	
RS-422	1-2, 5-6, 7-8, 9-10 11-12, 13-14, 15-16 17-18, 19-20	
RS-485	1-3, 4-6, 7-8, 9-10 11-12, 13-14, 15-16 17-18, 19-20	

*** Manufactory default --- RS-232.

2-6. KEYBOARD/MOUSE CONNECTOR

KB1 : Keyboard/Mouse Connector
The jumper settings are as follows:

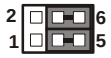
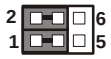
PIN	ASSIGNMENT
1	KBDATA
2	MSDATA
3	GND
4	KBVCC
5	KBCLK
6	MSCLK



KB1

2-7. KEYBOARD/MOUSE SELECTION

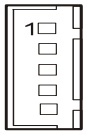
JP2 : Keyboard or Mouse Selection.
If User select to use Y-Cable, please set the jumper same as AT Keyboard.
The selections are as follows :

DEVICE TYPE	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
KEYBOARD/Y-Cable	3-5 4-6	 JP2
PS/2 MOUSE	1-3 2-4	 JP2

*** Manufactory default -- AT Keyboard

2-8. EXTERNAL KEYBOARD CONNECTOR

EXKB1 : External Keyboard Connector.
The pin assignments are as follows:



EXKB1

PIN	ASSIGNMENT
1	KBCLK
2	KBDATA
3	NC
4	GND
5	VCC

2-9. INVERTER CONNECTOR

INV1 : Inverter Connector
The pin assignment is as follows:

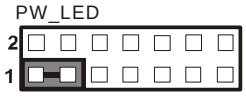
PIN	ASSIGNMENT
1	+12V
2	+12V
3	GND
4	VCC
5	GND
6	ENABKL (Inverter backlight ON/OFF control signal)

INV1

2-10. POWER LED CONNECTOR

J1 (1-3) : Power LED Connector
The pin assignment is as follows:

PIN	ASSIGNMENT
1	PW_LED
3	GND

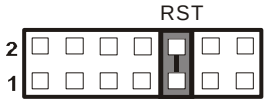


J1

2-11. RESET CONNECTOR

J1 (9-10) : Reset Connector.
The pin assignments are as follows :

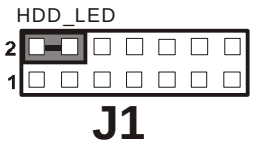
PIN	ASSIGNMENT
9	GROUND
10	RESET



J1

2-12. HARD DISK DRIVE LED CONNECTOR

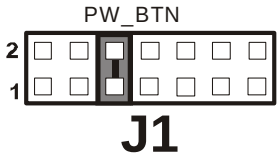
J1 (2-4) : Hard Disk Drive LED Connector
The pin assignments are as follows :



PIN	ASSIGNMENT
2	VCC
4	HDD Active Signal

2-13. POWER BUTTON

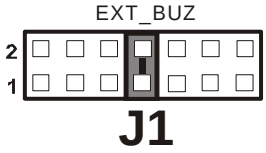
J1 (5-6) : Power Button for ATX power.
The pin assignments are as follows:



PIN	ASSIGNMENT
5	GROUND
6	PW_BN

2-14. EXTERNAL BUZZER CONNECTOR

J1 (7-8) : External Buzzer Connector
The pin assignments are as follows:



PIN	ASSIGNMENT
7	E_BUZ
8	VCC

2-15. FAN CONNECTOR

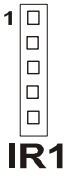
FAN1 : FAN Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	GND
2	+12V
3	FAN speed monitor

2-16. IRDA CONNECTOR

IR1 : IrDA (SIR) Connector
The pin assignments are as follows:

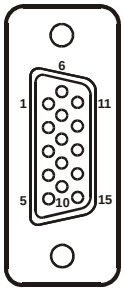
PIN	ASSIGNMENT
1	VCC
2	NC
3	IRRX
4	GND
5	IRTX



2-17. VGA CONNECTOR

VGA1 : VGA Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	RED
2	GREEN
3	BLUE
4	NC
5	GND
6	GND
7	GND
8	GND
9	NC
10	GND
11	NC
12	I2CCK
13	HSYNC
14	VSYNC
15	I2CDA

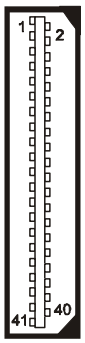


VGA

2-18. LCD CONNECTOR

LCD1 : LCD Connector
The pin assignments are as follows :

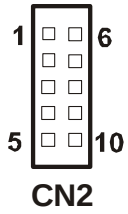
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	P20	2	GND
3	P16	4	LCD_VCC5
5	P21	6	P0
7	P17	8	P8
9	P22	10	P1
11	P18	12	P9
13	P23	14	P2
15	P19	16	P10
17	LCD_VCC5	18	P3
19	FPVS	20	P11
21	FPDEN	22	P4
23	FPHS	24	P12
25	FPCLLK	26	P5
27	LCD_VCC3	28	P13
29	LCD_VCC3	30	P6
31	ENABKL	32	P14
33	VCC	34	P7
35	ENVDD	36	P15
37	GND	38	+12V
39	GND	40	+12V
41	NC		



LCD1

2-19. UNIVERSAL SERIAL BUS CONNECTOR

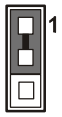
CN2 : Universal Serial Bus Connector
USB connector of this board can support two USB ports.
The pin assignments are as follows:



PIN	ASSIGNMENT
1	5V_SB
2	USBDT0-
3	USBDT0+
4	GND
5	GND
6	5V_SB
7	USBDT1–
8	USBDT1+
9	GND
10	GND

2-20. CLEAR CMOS SELECTION

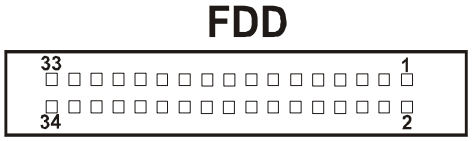
JP8 : Clear CMOS Selection
The selections are as follows:

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
Normal	1-2	
Clear CMOS	2-3	

*** Manufacturing Default – Normal.

2-21. FLOPPY DISK DRIVE CONNECTOR

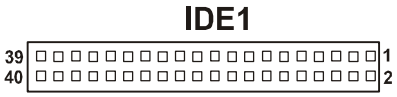
FDD1 : Floppy Disk Drive Connector
You can use a 34-pin daisy-chain cable to connect two FDDs. On one end of this cable there is a 34-pin flat cable to attach the FDD on the board, the other side attaches to two FDDs.
The pin assignments are as follows :



PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	2	DRVDEN0
3	GND	4	NC
5	GND	6	DRVDEN1
7	GND	8	INDEX
9	GND	10	MTR0
11	GND	12	DRV1
13	GND	14	DRV0
15	GND	16	MTR1
17	GND	18	DIR
19	GND	20	STEP
21	GND	22	WDATA
23	GND	24	WGATE
25	GND	26	TRK0
27	GND	28	WRPRT
29	GND	30	RDATA
31	GND	32	SEL
33	GND	34	DSKCHG

2-22. HARD DISK DRIVE CONNECTOR

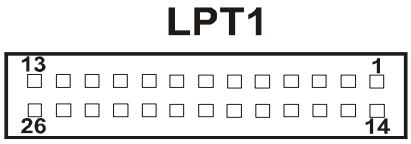
IDE1 : Hard Disk Drive Connector
The pin assignments are as follows:



PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	IDERST	2	GND
3	PDD7	4	PDD8
5	PDD6	6	PDD9
7	PDD5	8	PDD10
9	PDD4	10	PDD11
11	PDD3	12	PDD12
13	PDD2	14	PDD13
15	PDD1	16	PDD14
17	PDD0	18	PDD15
19	GND	20	NC
21	DDREQA	22	GND
23	-DIOWA	24	GND
25	-DIORA	26	GND
27	HDRDYA	28	PULL LOW
29	-DDACKA	30	GND
31	IRQ14	32	NC
33	PDA1	34	PD_80P
35	PDA0	36	PDA2
37	-PDCS1	38	-PDCS3
39	HDLED1	40	GND

2-23. PRINTER CONNECTOR

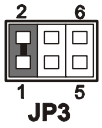
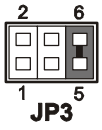
LPT1 : Printer Connector
As to link the Printer to the card, you need a cable to connect both DB25 connector and parallel port.
The pin assignments are as follows :



PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	STB	14	AUTFE
2	P0	15	ERROR
3	P1	16	INIT
4	P2	17	SLCTIN
5	P3	18	GND
6	P4	19	GND
7	P5	20	GND
8	P6	21	GND
9	P7	22	GND
10	ACK	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT	26	NC

2-24. RESET/NMI/CLEAR WATCHDOG SELECTION

JP3 : Reset/NMI/Clear Watchdog Selection
The selections are as follows:

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
RESET	1-2	
NMI	3-4	
CLEAR WATCHDOG	5-6	

2-25. IRQ12 RELEASE SELECTION

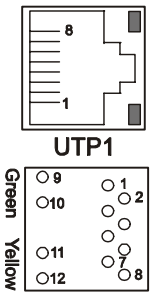
JP5 : IRQ12 Release Selection.
The selections are as follows:

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
IRQ12 Release	Open	
PS/2 Mouse	Closed	

2-26. LAN CONNECTOR

UTP1 : LAN Connector
The pin assignments are as follows:

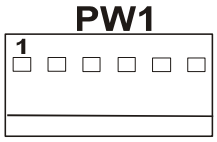
PIN	ASSIGNMENT
1	TX+
2	TX-
3	RX+
4	ISOLATED GND
5	ISOLATED GND
6	RX-
7	CT
8	CT
9	PULL HI
10	LED-Green (Speed)
11	PULL HI
12	LED-Yellow (Link)



2-27. AT POWER CONNECTOR

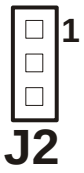
PW1 : Power Connector
The pin assignments are as follows :

PIN	ASSIGNMENT
1	VCC
2	VCC
3	+12V
4	-12V
5	GND
6	GND



2-28. ATX POWER CONNECTOR

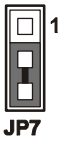
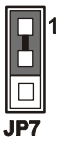
J2 : ATX Power Connector.
The pin assignments are as follows :



PIN	ASSIGNMENT
1	5V_SB
2	GND
3	PS_ON

2-29. AT/ATX POWER SELECTION

JP7 : AT/ATX Power Selection
The selections are as follows:

POWER SELECTION	JUMPER SETTING (pin closed) JP7	JUMPER ILLUSTRATION
ATX	2-3	
AT	1-2	

***Manufacturing Default: ATX

As a reminder, when you choose to use the ATX function, please be sure to set the corresponding configuration found in BIOS setup such as:

1. Inside the “POWER MANAGEMENT” setting, set the ACPI function to enable.

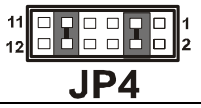
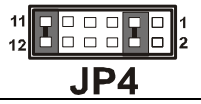
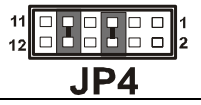
2-30. SOLID-STATE DISK SOCKET

SSD: 32pin Disk-on-chip Socket
The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	NC	17	SD3
2	NC	18	SD4
3	NC	19	SD5
4	SA12	20	SD6
5	SA7	21	SD7
6	SA6	22	CE
7	SA5	23	SA10
8	SA4	24	OE
9	SA3	25	SA11
10	SA2	26	SA9
11	SA1	27	SA8
12	SA0	28	NC
13	SD0	29	NC
14	SD1	30	VCC
15	SD2	31	WE
16	GND	32	VCC

2-31. SSD MEMORY MAPPING SELECTION

JP4 : SSD Memory Mapping Selections
A 32-pin SSD socket supports Disk-on-Chip up to 144MB. This PnP Flash ROM SSD can be install as one of user's hard disk drive.
The SSD Memory Mapping Selections are as follows:

SSD Memory Map	JUMPER SETTING (pin closed)		JUMPER ILLUSTRATION
D0000H-D1FFFH	3-4	9-10	
D4000H-D5FFFH	3-4	11-12	
D8000H-D9FFFH	5-6	9-10	
DC000H-DDFFFH	5-6	11-12	

*** Manufactory default --- D0000h-D1FFFh.

2-32. LVDS CONNECTOR

LVDS1 : LVDS Connector.

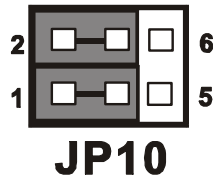
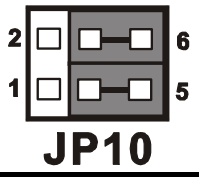
LVDS1

The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	LCD_VCC	2	GND
3	ZCM	4	ZCP
5	GND	6	Z2M
7	Z2P	8	GND
9	Z1M	10	Z1P
11	GND	12	GND
13	Z0P	14	Z0M
15	GND	16	YCP
17	YCM	18	GND
19	Y2P	20	Y2M
21	GND	22	Y1P
23	Y1M	24	GND
25	Y0P	26	Y0M
27	GND	28	GND
29	LCD_VCC	30	LCD_VCC

2-33. LVDS PANEL POWER SELECTION

JP10 : LVDS Panel Power Selection.
The selections are as follows:

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
LVDS_VCC3	1-3 2-4	
LVDS_VCC5	3-5 4-6	

HARDWARE CONFIGURATION

CHAPTER

2

*** QUICK START ***

Helpful information describes the jumper & connector settings, and component locations.

This section includes:

- Jumper & Connector Quick Reference Table
- Component Locations
- Configuration and Jumper settings
- Connector‘s Pin Assignments

SOFTWARE UTILITIES

CHAPTER

3

This chapter comprises the detailed information of VGA driver, LAN driver, sound driver, and Flash BIOS update. It also describes how to install the watchdog timer configuration.

Section includes:

- VGA Driver Utility
- Flash BIOS Update
- LAN Driver Utility
- Sound Driver Utility
- Watchdog Timer Configuration

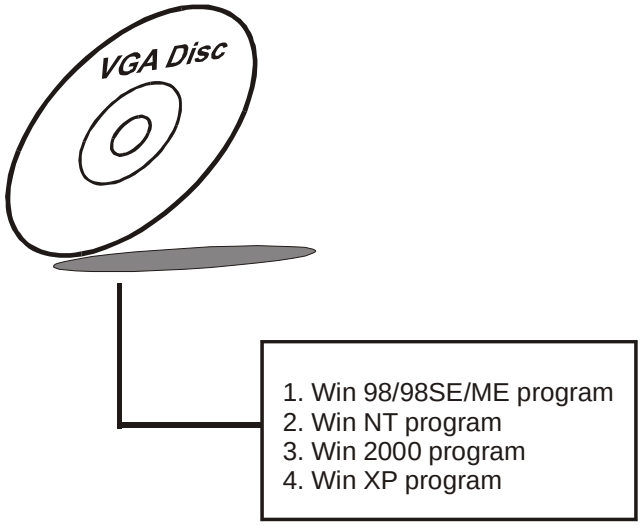
3-1. INTRODUCTION

Enclosed with our NuPRO-E400C package is our driver utility, which may comes in a form of a CD ROM disc or floppy diskettes. For CD ROM disc user, you will only need some of the files contained in the CD ROM disc, please kindly refer to the following chart:

Filename (Assume that CD ROM drive is D:)	**Purpose**
D:\VGA\VIA VT8606	For VGA driver installation
D:\Flash\	For BIOS update
D:\LAN\RTL8100BL	Realtek RTL8100BL For LAN Driver installation
D:\Sound\ALC202A	For Sound Driver installation

3-2. VGA DRIVER UTILITY

The VGA interface embedded with our NuPRO-E400C can support a wide range of display mode, such as SVGA, STN, TFT .....etc. You can display CRT and LVDS simultaneously with the same mode.



3-3. FLASH BIOS UPDATE

3-3-1. System BIOS Update:

Users of NuPRO-E400C can use the program "Awdflash.exe" contained in the Utility Disk for system BIOS and VGA BIOS update.

3-3-2. To update VGA BIOS for LCD Flat Panel Display:

As NuPRO-E400C user, you have to update the VGA BIOS for your specific LCD flat panel you are going to use. For doing this, you need two files. One is the "Awdflash.exe" file and the other is the VGA BIOS for LCD panel display. Both file must be provided by the vendor or manufacturer. When you get these two files ready, follow the following steps for updating your VGA BIOS:

1. Install "Awdflash.exe" from Utility Disk to Drive C.
2. Insert the VGA BIOS file you have obtained from the vendor.
3. Type the path to Awdflash.exe and execute the VGA BIOS update with file C30bxxxx.bin
   C:\UTIL\AWDFLASH>AWDFLASH C30bxxxx.bin
4. The screen will display the table below:

FLASH MEMORY WRITER v7.XX (C) Award Software 2000 All Rights Reserved
For 8604-686B-6A6LLP69C-0 DATE: 04/23/2001 Flash Type - MXIC 29F002(N)T /5V File Name to Program: C30bxxxx.bin Checksum: XXXXX
Error Message : Do You Want To Save BIOS (Y/N)

If you want to save up the original BIOS, enter "Y" and press < Enter > .
If you choose "N", the following table will appear on screen.

FLASH MEMORY WRITER v7.XX (C) Award Software 2000 All Rights Reserved
For 8604-686B-6A6LLP69C-0 DATE: 04/23/2001 Flash Type - MXIC 29F002(N)T /5V File Name to Program: C30bxxxx.bin Checksum: XXXXX
Error Message : Are You Sure To Program (Y/N)

Select "Y", and the BIOS will be renewed. When you are refreshing the BIOS, do not turn off or reset the system, or you will damage the BIOS. After you have completed all the programming, the screen displays the table below:

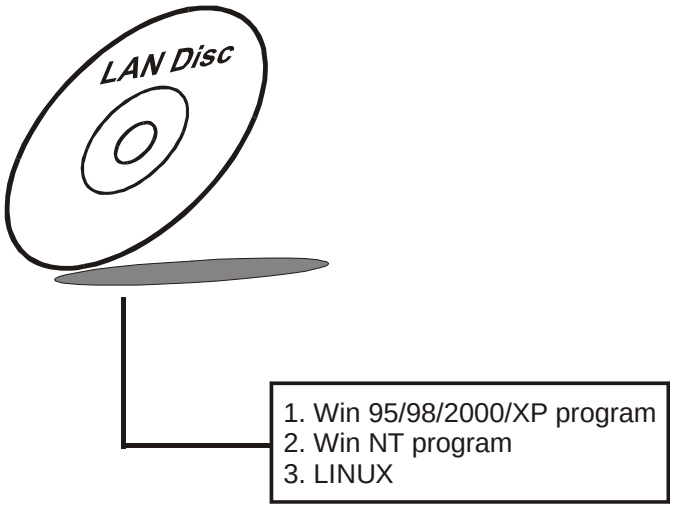
FLASH MEMORY WRITER v7.XX (C) Award Software 2000 All Rights Reserved
For 8604-686B-6A6LLP69C-0 DATE: 04/23/2001 Flash Type - MXIC 29F002(N)T /5V File Name to Program: C30bxxxx.bin Checksum: XXXXX Reset System or Power off to accomplish update process!
F1: Reset F10: Exit

Please reset or power off the system, and then the Flash BIOS is fully implemented.

3-4. LAN DRIVER UTILITY

3-4-1. Introduction

NuPRO-E400C Embedded Board is enhanced with LAN function that can support various network adapters. Installation programs for LAN drivers are listed as follows:



3-4-2. Installation Procedures of LAN Driver

1. Install LAN Driver to Windows 98/2000/XP

Executing Windows 98/Windows 2000/Windows XP, it will auto-detect your system configuration and find the adapter hardware.

(1) Ask you to select which driver you want to install, select "Driver from disk provided by hardware manufacturer".

(2) Insert the Realtek RTL8100B driver disk into the drive A or CD drive and specify the setup file pathname, ex: A:\ .

(3) Win 98/ Win 2000 will appear some messages to insert Windows 98/Win2000 system disk to complete setup step.

(4) Windows 98/Windows 2000 will finish the other installation procedure automatically, and then restart the system.

2. Install LAN Driver to Windows NT 3.0/4.0

(1) In the Main group of NT, select the "Control Panel" icon.
(2) In the Control Panel window, choose the "Network" icon.
(3) In the Network Settings dialog box, choose the "Add adapter" button. The Add Network Adapter dialog box appears.
(4) In the list of network cards, select "<other> Requires disk from manufacturer", and then press <Enter> button.
(5) Insert the LAN driver utility, and enter the filename (ex. A:\ pathname) where the setup file OEMSETUP.INF is located, and then choose OK button.
(6) The screen will appear "Select Line Speed" dialog box, which is provided by R8139n5.SYS driver. The default value is "auto" so that the line speed can be auto detected as 10MB or 100MB, while the R8139n5.SYS is loading.
(7) The screen will appear "Input Ethernet ID" dialog box, which is provided by R8139n5.SYS driver. This option is only required when you have more than one RTL8100B PCI Fast Ethernet adapters on this computer. Select "SKIP" if only one adapter is installed on this computer.
(8) "Bus Location" displayed in next screen. Your machine contains more than one hardware bus, please select the Bus Type and Bus number on which your network adapter card is installed.
(9) NT will then perform the binding process. If any additional network software options were installed, you may be prompted for specific information for these packages.
(10) Re-starting your system you will acquire network service.

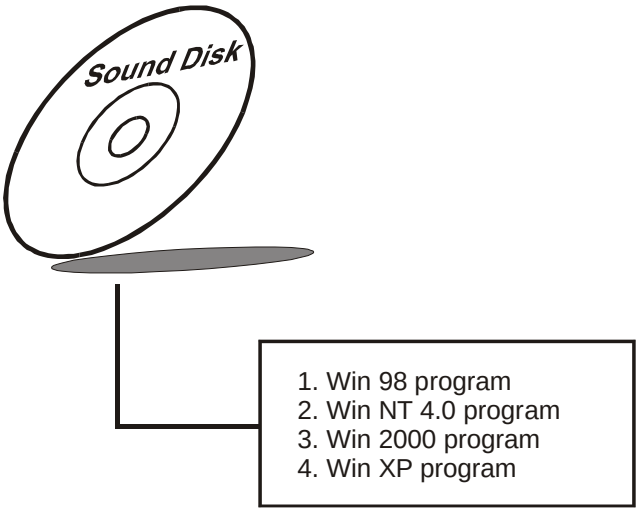
🗁 Note: For Installing Multiple LAN Adapters:
Enter Windows NT and follow above setup procedure step 2, in the "Network Settings" dialog box, choose the "Configure..." button. The "Input Ethernet ID" dialog box appears and input adapter's Ethernet ID. Last step to select OK and close NETWORK SETUP. Select SKIP if only one adapter is installed on this computer.

For more information on installation procedure, please refer to TXT directory found on LAN DRIVER UTILITY.

3-5. SOUND DRIVER UTILITY

3-5-1. Introduction

The sound function enhanced in this system is fully compatible with Windows 9x/98SE/ME, Windows NT, Linux, Windows 2000 and Windows XP. Below, you will find the content of the Sound driver :



3-5-2. Installation Procedure In Windows NT

(1) Open “Main” Window in Program Manager.
(2) Select “Control Panel” in Main Window, then open it.
(3) Select “Drivers” in Control Panel. Double Click it to open this window. Then choose “ADD” item to add driver.
(4) Choose “Unlisted or Updated Driver” on the list. Then press “OK” button.
(5) Change the “Install Driver” directory to the “VIA Audio Driver directory”. Then press “OK” button.
(6) If it correct, you will see a pop window, which shows “VIA PCI Audio Controller”. Press “OK” button to process installing.
(7) Restart the computer.

3-6. WATCHDOG TIMER CONFIGURATION

This board has watchdog timer function for monitoring whether the system is still work or not after a period of time. The user can select watchdog timer to system reset or NMI (Non Maskable interrupt) depending on the jumper set in "Reset/NMI/Clear Watchdog Selection" found in chapter 2. This is defined at I/O port **443H**. When you want to enable the watchdog timer, please write I/O port **443H**, and then the system will either reset itself or perform the NMI function. Likewise, when you want to disable the function, write I/O port **441H**, the system will run the command to stop the Watchdog function.

In NuPRO-E400C watchdog function, you must write your program so when it writes I/O port address 443 for enable watchdog and write I/O port address 441 for disable watchdog. The timer's intervals have a tolerance of 25% so you should program an instruction that will refresh the timer about every second.

The following program shows you how to program the watch timer in your program.

Watchdog enable program:

```
MOVAX, 000FH(choose the values you need; start from 0)
MOVDX, 443H
OUTDX, AX
```

Watchdog disable program:

```
MOVAX, 000FH(this value can be ignored)
MOVDX, 441H
OUTDX, AX
```

The Watchdog Timer control table is as follows:

Level	Value	Time/sec	Level	Value	Time/sec
1	F	0	9	7	64
2	E	8	10	6	72
3	D	16	11	5	80
4	C	24	12	4	88
5	B	32	13	3	96
6	A	40	14	2	104
7	9	48	15	1	112
8	8	56	16	0	120

AWARD BIOS SETUP

CHAPTER 4

This chapter shows how to set up the Award BIOS.

Section includes:

- Introduction
- Entering Setup
- The Standard CMOS Features
- The Advanced BIOS Features
- The Advanced Chipset Features
- Integrated Peripherals
- Power Management Setup
- PNP/PCI Configuration
- PC Health Status
- Frequency/Voltage Control
- Load Fail-Safe Defaults
- Load Optimized Defaults
- Password Setting
- Save and Exit Setup
- Exit Without Saving

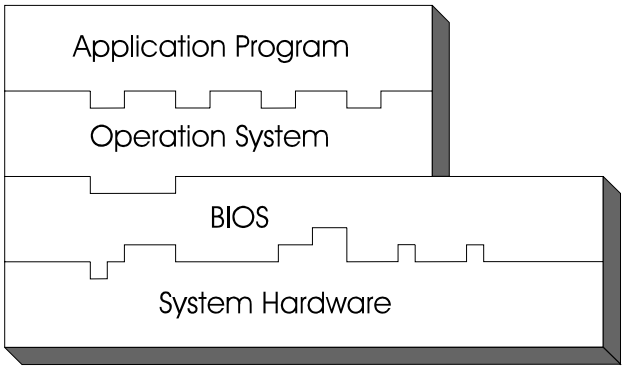
4-1. INTRODUCTION

This chapter will show you the function of the BIOS in managing the features of your system. The NuPRO-E400C half size Embedded Board is equipped with the BIOS for system chipset from Award Software Inc. This page briefly explains the function of the BIOS in managing the special features of your system. The following pages describe how to use the BIOS for system chipset Setup menu.

Your application programs (such as word processing, spreadsheets, and games) rely on an operating system such as DOS or OS/2 to manage such things as keyboard, monitor, disk drives, and memory.

The operating system relies on the BIOS (Basic Input and Output system), a program stored on a ROM (Read-only Memory) chip, to initialize and configure your computer's hardware. As the interface between the hardware and the operating system, the BIOS enables you to make basic changes to your system's hardware without having to write a new operating system.

The following diagram illustrates the interlocking relationships between the system hardware, BIOS, operating system, and application program:



4-2. ENTERING SETUP

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines and the following message will appear on the lower screen:

PRESS <DEL> TO ENTER SETUP, ESC TO SKIP MEMORY TEST

As long as this message is present on the screen you may press the <Del> key (the one that shares the decimal point at the bottom of the number keypad) to access the Setup program. In a moment, the main menu of the Award SETUP program will appear on the screen:

Phoenix - AwardBIOS CMOS Setup Utility

►Standard CMOS Features	►Frequency/Voltage Control
►Advanced BIOS Features	Load Fail-Safe Defaults
►Advanced Chipset Features	Load Optimized Defaults
►Integrated Peripherals	Set Password
►Power Management Setup	Save & Exit Setup
►PnP/PCI Configurations	Exit Without Saving
►PC Health Status	
Esc : Quit F10 : Save & Exit Setup	↑↓→← : Select Item
Time, Date, Hard Disk Type ….	

Setup program initial screen

You may use the cursor the up/down keys to highlight the individual menu items. As you highlight each item, a brief description of the highlighted selection will appear at the bottom of the screen.

4-3. THE STANDARD CMOS FEATURES

Highlight the "STANDARD CMOS FEATURES" and press the <ENTER> key and the screen will display the following table:

Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Mon, Jan 12 2004	Item Help
Time (hh:mm:ss)	18 : 31 : 4	Menu Level ►
► IDE Primary Master	[ST340014A]	
► IDE Primary Slave	[DV-516E]	Change the day, month, year and century
► IDE Secondary Master	[None]	
► IDE Secondary Slave	[None]	
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Video	[EGA/VGA]	
Halt On	[All, But Keyboard]	
Base Memory	640K	
Extended Memory	506880K	
Total Memory	507904K	

↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

CMOS Setup screen

In the above Setup Menu, use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

Date:

< Month >, < Date > and <Year >. Ranges for each value are in the CMOS Setup Screen, and the week-day will skip automatically.

Time:

< Hour >, < Minute >, and < Second >. Use 24 hour clock format, i.e., for PM numbers, add 12 to the hour. For example: 4: 30 P.M. You should enter the time as 16:30:00.

IDE Primary Master / Slave:
IDE Secondary Master / Slave:

The BIOS can automatically detect the specifications and optimal operating mode of almost all IDE hard drives. When you select type AUTO for a hard drive, the BIOS detect its specifications during POST, every time system boots.

If you do not want to select drive type AUTO, other methods of selecting drive type are available:

1. Match the specifications of your installed IDE hard drive(s) with the preprogrammed values for hard drive types 1 through 45.
2. Select USER and enter values into each drive parameter field.
3. Use the IDE HDD AUTO DETECTION function in Setup.

Here is a brief explanation of drive specifications:

Type: The BIOS contains a table of pre-defined drive types. Each defined drive type has a specified number of cylinders, number of heads, write precompensation factor, landing zone, and number of sectors. Drives whose specifications do not accommodate any predefine type are classified as type USER.

- Size: Disk drive capacity (approximate). Note that this size is usually greater than the size of a formatted disk given by a disk-checking program.
- Cyls: number of cylinders.
- Head: number of heads.
- Precomp: write precompensation cylinders.
- Landz: landing zone.
- Sector: number of sectors.
- Mode: Auto, Normal, Large or LBA.

  Auto: The BIOS automatically determines the optimal mode.

  - Normal: Maximum number of cylinders, heads, sectors supported are 1024, 16 and 63.
  - Large: For drives that do not support LBA and have more than 1024 cylinders.

- LBA (Logical Block Addressing): During drive accesses, the IDE controller transforms the data address described by sector, head and cylinder number into a physical block address, significantly improving data transfer rates. For drives greater than 1024 cylinders.

DRIVE A AND DRIVE B:

Select the type of floppy disk drive installed in your system. The available options are 360KB 5.25in, 1.2KB 5.25in, 720KB 3.5in, 1.44MB 3.5in, 2.88MB 3.5in and None.

VIDEO:

This category selects the type of video adapter used for the primary system monitor. Although secondary monitors are supported, you do not have to select the type in Setup. Available Options are as follows:

EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SEGA, SVGA or PGA monitor adapters.
CGA 40	Color Graphics Adapter, power up in 40 column mode.
CGA 80	Color Graphics Adapter, power up in 80 column mode.
MONO	Monochrome adapter, includes high resolution monochrome adapters.

HALT ON:

This category allows user to choose whether the computer will stop if an error is detected during power up. Available options are “All errors”, “No errors”, “All, But keyboard”, “All, But Diskette”, and “All But Disk/Key”.

BASE MEMORY:

Displays the amount of conventional memory detected during boot up.

EXTENDED MEMORY:

Displays the amount of extended memory detected during boot up.

TOTAL MEMORY:

Displays the total memory available in the system.

HARD DISK ATTRIBUTES:

Type	Cylinders	Heads	V-P comp	LZone	Sect	Capacity
1	306	4	128	305	17	10
2	615	4	300	615	17	20
3	615	6	300	615	17	30
4	940	8	512	940	17	62
5	940	6	512	940	17	46
6	615	4	65535	615	17	20
7	642	8	256	511	17	30
8	733	5	65535	733	17	30
9	900	15	65535	901	17	112
10	820	3	65535	820	17	20
11	855	5	65535	855	17	35
12	855	7	65535	855	17	49
13	306	8	128	319	17	20
14	733	7	65535	733	17	42
15	000	0	0000	000	00	00
16	612	4	0000	663	17	20
17	977	5	300	977	17	40
18	977	7	65535	977	17	56
19	1024	7	512	1023	17	59
20	733	5	300	732	17	30
21	733	7	300	732	17	42
22	733	5	300	733	17	30
23	306	4	0000	336	17	10
24	977	5	65535	976	17	40
25	1024	9	65535	1023	17	76
26	1224	7	65535	1223	17	71
27	1224	11	65535	1223	17	111
28	1224	15	65535	1223	17	152
29	1024	8	65535	1023	17	68
30	1024	11	65535	1023	17	93
31	918	11	65535	1023	17	83
32	925	9	65535	926	17	69
33	1024	10	65535	1023	17	85
34	1024	12	65535	1023	17	102
35	1024	13	65535	1023	17	110
36	1024	14	65535	1023	17	119
37	1024	2	65535	1023	17	17
38	1024	16	65535	1023	17	136
39	918	15	65535	1023	17	114
40	820	6	65535	820	17	40
41	1024	5	65535	1023	17	42
42	1024	5	65535	1023	26	65
43	809	6	65535	852	17	40
44	809	6	65535	852	26	61
45	776	8	65335	775	33	100
47			AUTO			

Award Hard Disk Type Table

4-4. THE ADVANCED BIOS FEATURES

Choose the "ADVANCED BIOS FEATURES" in the main menu, the screen shown as below.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features

Virus Warning	[Disabled]	Item Help
CPU Internal Cache	[Enabled]	
External Cache	[Enabled]	Menu Level ►
CPU L2 Cache ECC Checking	[Enabled]	
Quick Power On Self Test	[Enabled]	
First Boot Device	[Floppy]	
Second Boot Device	[HDD-0]	Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep
Third Boot Device	[LS120]	
Boot Other Device	[Enabled]	
Swap Floppy Drive	[Disabled]	
Boot Up Floppy Seek	[Disabled]	
Boot Up NumLock Status	[On]	
Gate A20 Option	[Fast]	
Typematic Rate Setting	[Disabled]	
x Typematic Rate (Chars/Sec)	6	
x Typematic Delay (Msec)	250	
Security Option	[Setup]	
OS Select for DRAM > 64MB	[Non-OS2]	
Video BIOS Shadow	[Enabled]	
C8000-CBFFF Shadow	[Disabled]	
CC000-CFFFF Shadow	[Disabled]	
D0000-D3FFF Shadow	[Disabled]	
D4000-D7FFF Shadow	[Disabled]	
D8000-DBFFF Shadow	[Disabled]	
DC000-DFFFF Shadow	[Disabled]	
Small Logo (EPA) Show	[Enabled]	

↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

BIOS Features Setup Menu

The "BIOS FEATURES SETUP" allow you to configure your system for basic operation. The user can select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

A brief introduction of each setting in the BIOS FEATURES SETUP program is given below.

VIRUS WARNING :

This item allows you to choose the Virus Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.

CPU INTERNAL CACHE/EXTERNAL CACHE :

These two categories speed up memory access. However, it depends on CPU/chipset design.

CPU L2 CACHE ECC CHECKING :

This item allows you to enable or disable CPU L2 Cache ECC checking.

QUICK POWER ON SELF-TEST:

This item allows you to speed up Power On Self Test (POST) after power-up the computer. When enabled, the BIOS will shorten or skip some check items during POST.

FIRST/SECOND/THIRD/OTHER BOOT DEVICE:

The BIOS attempt to load the operating system from the devices in the sequence selected in these items.

SWAP FLOOPY DRIVE:

This field is effective only in systems with two floppy drives. Selecting Enabled assigns physical drive B to logical drive A, and physical drive A to logical drive B.

BOOT UP FLOPPY SEEK:

You may enable / disable this item to define whether the system will look for a floppy disk drive to boot at power-on, or proceed directly to the hard disk drive.

BOOT UP NUMLOCK STATUS:

Select power on state for NumLock.

GATE A20 OPTION:

This entry allows you to select how the gate A20 is handled. When Normal was set, a pin in the keyboard controller controls Gate A20. And when Fast was set, the chipset controls Gate A20.

TYPEMATIC RATE SETTING:

Enable this item if you wish to be able to configure the characteristics of your keyboard. Typematic refers to the way in which characters are entered repeatedly if a key is held down. For example, if you press and hold down the "A" key, the letter "a" will repeatedly appear on your screen on your screen until you release the key. When enabled, the typematic rate and typematic delay can be selected.

TYPEMATIC RATE (CHARS/SEC):

This item sets the number of times a second to repeat a key stroke when you hold the key down.

TYPEMATIC DELAY (MSEC):

The item sets the delay time after the key is held down before it begins to repeat the keystroke.

SECURITY OPTION:

This category allows you to limit access to the system and Setup, or just to Setup.

System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

- To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

OS SELECT FOR DRAM >64MB :

Select the operating system that is running with greater than 64MB or RAM on the system. You may choose OS2 or Non-OS2.

VIDEO BIOS SHADOW :

Determines whether video BIOS will be copied to RAM. However, it is optional depending on chipset design. Video Shadow will increase the video speed.

C8000-CBFFF SHADOW ~ DC000-DFFFF SHADOW:

These categories determine whether option ROMs will be copied to RAM. An example of such option ROM would be support of on-board SCSI.

4-5. ADVANCED CHIPSET FEATURES

Choose the "ADVANCED CHIPSET FEATURES" from the main menu, the screen shown as below.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features

	DRAM Timing by SPD	[Enabled]
x	DRAM Clock	Host CLK
x	SDRAM Cycle Length	3
x	Bank Interleave	Disabled
	Memory Hole	[Disabled]
	P2C/C2P Concurrency	[Enabled]
	System BIOS Cacheable	[Disabled]
	Video RAM Cacheable	[Disabled]
	Frame Buffer Size	[16M]
	AGP Aperture Size	[64M]
	Select Display Device	[CRT]
	Panel Type	[08]
	OnChip USB	[Enabled]
	USB Keyboard Support	[Disabled]
	OnChip Sound	[Auto]
	CPU to PCI Write Buffer	[Enabled]
	PCI Dynamic Bursting	[Enabled]
	PCI Master 0 WS Write	[Enabled]
	PCI Delay Transaction	[Disabled]
	PCI#2 Access #1 Retry	[Enabled]
	IO Channel check NMI	[Disabled]

Item Help

Menu Level ►

↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Chipset Features Setup Screen

The parameter allows you to configure the system based on the specific features of the installed chipset. The chipset manages bus speed and access to system memory resources, such as DRAM and the external cache.

It also coordinates communications between conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for the system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

DRAM CLOCK:

This item allows you to control the DRAM speed.

SDRAM CYCLE LENGTH:

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value specified by the system designer.

MEMORY HOLE:

In order to improve performance, certain space in memory is reserved for ISA cards. This memory must be mapped into the memory space below 16MB.

P2C/C2P CONCURRENCY:

This item allows you to enable/disable the PCI to CPU, CPU to PCI concurrency.

SYSTEM BIOS CACHEABLE:

This item allows you to enable caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

VIDEO RAM CACHEABLE:

Select Enabled allows caching of the video RAM, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

ONCHIP USB:

This should be enabled if your system has a USB installed on the system board and you want to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature.

USB KEYBOARD SUPPORT:

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

ONCHIP SOUND:

This item allows you to control the onboard AC '97 audio.

CPU TO PCI WRITE BUFFER:

When this field is Enabled, writes from the CPU to the PCI bus are buffered, to compensate for the speed differences between the CPU and the PCI bus. When Disabled, the writes are not buffered and the CPU must wait until the write is complete before starting another write cycle.

PCI DYNAMIC BURSTING:

When Enabled, every write transaction goes to the write buffer. Burstable transactions then burst on the PCI bus and non-burstable transaction don't.

PCI MASTER 0 WS WRITE:

When Enabled, writes to the PCI bus are executed with zero wait states.

PCI DELAY TRANSACTION:

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1.

PCI#2 ACCESS #1 RETRY:

When disabled, PCI#2 will not be disconnected until access finishes. When Enabled, PCI#2 will be disconnected if max retries are attempted without success.

IO CHANNEL CHECK NMI:

This field enables or disables IO channel check NMI. Before selecting this function, the user should check first that NMI function is enabled as described in chapter 2 (Reset/NMI/Clear Watchdog Selection).

4-6. INTEGRATED PERIPHERALS

Choose "INTEGRATED PERIPHERALS" from the main setup menu, a display will be shown on screen as below:

Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals

	On-Chip IDE Channel0	[Enabled]	Item Help
	IDE Prefetch Mode	[Enabled]	
	Primary Master PIO	[Auto]	Menu Level ►
	Primary Slave PIO	[Auto]	
	Primary Master UDMA	[Auto]	
	Primary Slave UDMA	[Auto]	
	Init Display First	[PCI Slot]	
	IDE HDD Block Mode	[Enabled]	
	Onboard FDD Controller	[Enabled]	
	Onboard Serial Port 1	[Auto]	
	Onboard Serial Port 2	[Auto]	
	UART 2 Mode	[Standard]	
x	IR Function Duplex	Half	
x	TX,RX inverting enable	No, Yes	
	Onboard Parallel Port	[378/IRQ7]	
	Onboard Parallel Mode	[Normal]	
x	ECP Mode Use DMA	3	
x	Parallel Port EPP Type	EPP1.9	

↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Integrated Peripherals Setup Screen

By moving the cursor to the desired selection and by pressing the <F1> key, the all options for the desired selection will be displayed for choice.

ONCHIP IDE CHANNEL 0:

The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the primary IDE interface. Select Disabled to deactivate this interface.

IDE PREFETCH MODE:

The onboard IDE drive interfaces supports IDE pre-fetching for faster drive accesses. If you install a primary and or secondary add-in IDE interface, set this field to *Disabled* if the interface does not support pre-fetching.

PRIMARY MASTER/SLAVE PIO:

The four IDE PIO fields allow you to set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

PRIMARY MASTER/SLAVE UDMA:

Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If you hard drive and your system software both support Ultra DMA/33, select Auto to enable BIOS support.

INIT DISPLAY FIRST:

This item allows you to decide to active whether PCI Slot or on-chip VGA first. The choices are PCI Slot and Onboard.

IDE HDD BLOCK MODE:

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

ONBOARD FDD CONTROLLER:

Select Enabled if the system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select Disabled.

ONBOARD SERIAL PORT 1:
ONBOARD SERIAL PORT 2:

Select an address and corresponding interrupt for the 1st, 2nd, 3rd and forth serial ports.

UART 2 MODE:

This item allows you to select which mode for the Onboard Serial Port 2.

IR FUNCTION DUPLEX:

This item allows you to select the IR half/full duplex function.

TX, RX INVERTING ENABLE:

This item allows you to enable TX, RX inverting which depends on different H/W requirement. This field is not recommended to change its default setting for avoiding any error in your system.

ONBOARD PARALLEL PORT:

This item allows you to determine access onboard parallel port controller with which I/O address.

ONBOARD PARALLEL MODE:

Select an operating mode for the onboard (printer) port. Select *Normal* unless you are certain your hardware and software both support one of the other available modes.

ECP MODE USE DMA:

Select a DMA channel for the parallel port for use during ECP mode.

PARALLEL PORT EPP TYPE:

Select EPP port type 1.7 or 1.9 as required by your parallel peripheral.

4-7. POWER MANAGEMENT SETUP

Choose "POWER MANAGEMENT SETUP" option on the main menu, a display will be shown on screen as below :

Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup

ACPI function	[Disabled]	Item Help
►Power Management	[Press Enter]	
PM Control by APM	[Yes]	Menu Level ►
Video Off Option	[Suspend -> Off]	
Video Off Method	[V/H SYNC+Blank]	
MODEM Use IRQ	[3]	
Power-Supply Type	[AT]	
Soft-off by PWRBTN	[Instant-off]	
State After Power Failure	[Off]	
►Wake Up Events	[Press Enter]	

↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Power Management Setup Screen

The "Power Management Setup" allows the user to configure the system to the most effectively save energy while operating in a manner consistent with your own style of computer use.

ACPI FUNCTION:

Users are allowed to enable or disable the Advanced Configuration and Power Management (ACPI).

POWER MANAGEMENT:

This item allows the user to select the type or degree of power saving and is directly related to HDD Power Down, Doze Mode and Suspend Mode.

PM CONTROL BY APM:

If Advanced Power Management (APM) is installed on your system, selecting Yes gives better power savings.

VIDEO OFF OPTION:

This category determines the power-saving modes during which the monitor goes blank:

ALWAYS ON	Monitor remains on during power-saving modes.
SUSPEND → OFF	Monitor blanked when system enters Suspend mode.
SUSP,STBY → OFF	Monitor blanked when system enters either Suspend or Standby mode.
ALL MODES → OFF	Monitor blanked when system enters any power saving mode.

VIDEO OFF METHOD:

This category determines the manner in which the monitor is blanked.

V/H SYNC+BLANK	This selection will cause the system to turn off the vertical & horizontal synchronization ports and writes blanks to video buffer.
BLANK SCREEN	This selection only writes blanks to video buffer.
DPMS SUPPORT	Initial display power management signaling.

MODEM USE IRQ:

This item enable you to name the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.

SOFT-OFF BY PWRBTN:

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung". The choices are Delay 4 Sec and Instant-Off.

WAKE UP EVENTS:

Wake up events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything that occurs to a device, which is configured as ON, even when the system is in a power down mode.

VGA:
When Enabled, you can set the VGA awakens the system.

LPT & COM:
When *ON of LPT & COM*, any activity from one of the listed system peripheral devices or IRQs wakes up the system.

HDD & FDD:
When *ON of HDD & FDD*, any activity from one of the listed system peripheral devices wakes up the system.

PCI MASTER:
When *ON of PCI Master*, any activity from one of the listed system peripheral devices wakes up the system.

WAKE UP ON LAN/RING:
This category allows you to wake up the system from LAN from remote host. And it also can be awaken from an input signal on serial Ring Indicator (RI) line (incoming call on the modem).

RTC ALARM RESUME:
When Enabled, you can set the date and the time at which the RTC alarm awakens the system from Suspend mode.

PRIMARY INTR:
When set to Off, IRQ Activity Monitoring is set to BIOS default. When set to On, user may select the desired setting.

4-8. PNP/PCI CONFIGURATION

Choose "PNP/PCI CONFIGURATION" from the main menu, a display will be shown on screen as below:

Phoenix - AwardBIOS CMOS Setup Utility
PnP/PCI Configurations

PNP OS Installed	[No]	Item Help
Reset Configuration Data	[Disabled]	
Resources Controlled By	[Auto(ESCD)]	Menu Level ►
x IRQ Resources	Press Enter	
x DMA Resources	Press Enter	Select Yes if you are using a Plug and Play capable operating system Select No if you need the BIOS to configure non-boot devices
PCI/VGA Palette Snoop	[Disabled]	
Assign IRQ for VGA	[Enabled]	
Assign IRQ for USB	[Enabled]	

↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

PNP/PCI Configuration Setup Screen

Note: Please change IRQ 15 to Legacy ISA before installing Windows 98.

This section describes how to configure PCI bus system. PCI, also known as Personal Computer Interconnect, is a system, which allows I/O devices to operate at speeds nearing the speed of the CPU itself uses when communicating with its own special components. This section covers technical items, which is strongly recommended for experienced users only.

PNP OS INSTALLED:

This item allows you to determine install PnP OS or not.

RESET CONFIGURATION DATA:

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system configuration has caused such a serious conflict that the operating system cannot boot.

RESOURCE CONTROLLED BY:

The Award Plug and Play Bios can automatically configure all of the booth and Plug and Play-compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows 95. By choosing "manual", you are allowed to configure the *IRQ Resources*, *DMA Resources* and *Memory Resources*. The choices are Auto (ESCD) and Manual.

IRQ RESOURCES:

You may assign each system interrupt a type, depending on the type of device using the interrupt.

DMA RESOURCES:

When resources are controlled manually, assign each system DMA channel a type, depending on the type of device using the DMA channel.

PCI/VGA PALETTE SNOOP:

Leave this field at disabled.

ASSIGN IRQ FOR USB:

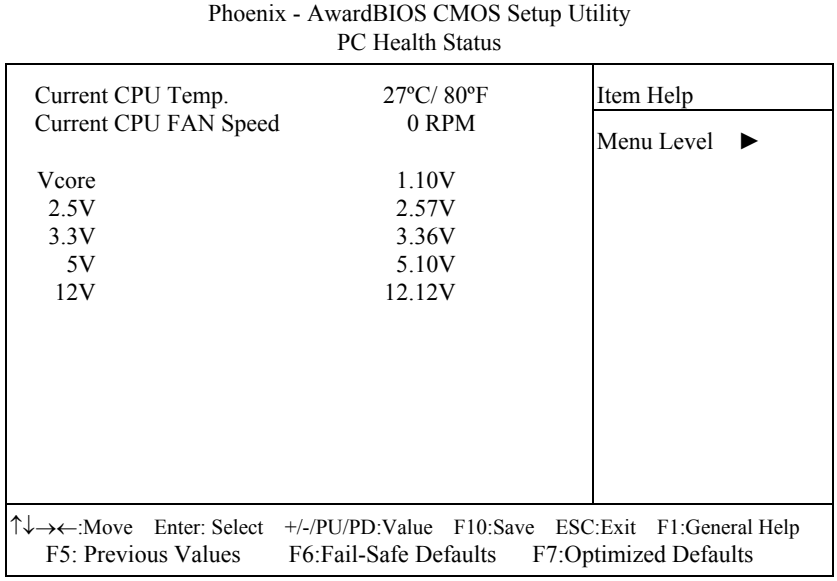
Enable or Disable to assign IRQ for USB.

ASSIGN IRQ FOR VGA:

Enable or Disable to assign IRQ for VGA.

4-9. PC HEALTH STATUS

Choose "PC HEALTH STATUS" from the main menu, a display will be shown on screen as below:



PC Health Status Setup Screen

The setup menu allows you to select whether to choose between monitoring or ignoring the hardware monitoring function of your system.

CURRENT CPU TEMPERATURE:

This item shows you the current CPU temperature.

CURRENT CPUFAN SPEED:

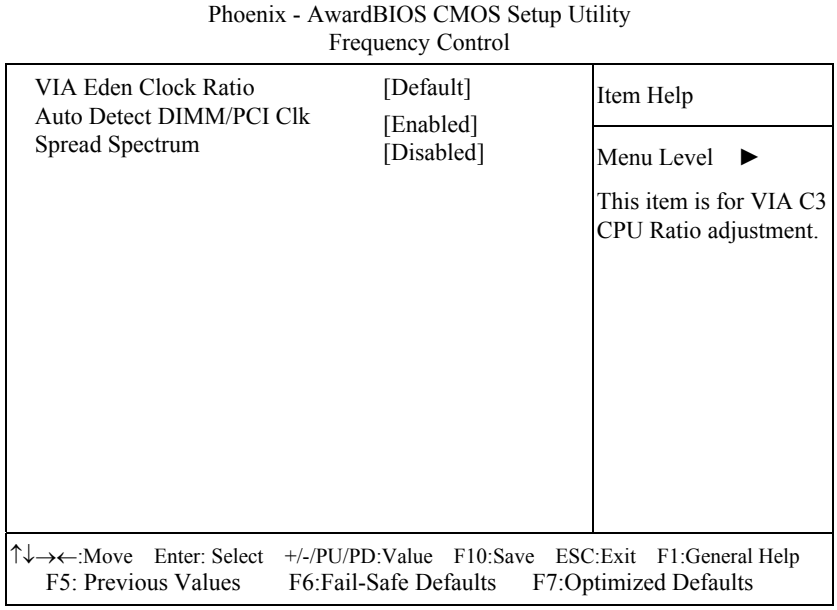
This item shows you the current CPUFAN speed.

VCORE:

This item shows you the current system voltage.

4-10. FREQUENCY/VOLTAGE CONTROL

Choose "FREQUENCY/VOLTAGE CONTROL" from the main menu, a display will be shown on screen as below:



Frequency / Voltage Control Setup Screen

This setup menu allows you to specify your settings for frequency/voltage control.

AUTO DETECT DIMM/PCI CLK:

This item allows you to enable or disable auto detect DIMM/PCI Clock.

SPREAD SPECTRUM:

This item allows you to enable or disable the spread spectrum modulate.

4-11. LOAD FAIL-SAFE DEFAULTS

By pressing the <ENTER> key on this item, you get a confirmation dialog box with a message similar to the following:

```
Load Fail-Safe Defaults ( Y/N ) ? N
```

To use the BIOS default values, change the prompt to "Y" and press the <Enter > key. CMOS is loaded automatically when you power up the system.

4-12. LOAD OPTIMIZED DEFAULTS

When you press <Enter> on this category, you get a confirmation dialog box with a message similar to the following:

```
Load Optimized Defaults ( Y/N ) ? N
```

Pressing "Y" loads the default values that are factory setting for optimal performance system operations.

4-13. PASSWORD SETTING

User is allowed to set either supervisor or user password, or both of them. The difference is that the supervisor password can enter and change the options of the setup menus while the user password can enter only but do not have the authority to change the options of the setup menus.

TO SET A PASSWORD

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

Enter Password:

Type the password up to eight characters in length, and press < Enter >. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press the < Enter > key. You may also press < Esc > to abort the selection and not enter a password.

- User should bear in mind that when a password is set, you will be asked to enter the password everything you enter CMOS setup Menu.

TO DISABLE THE PASSWORD

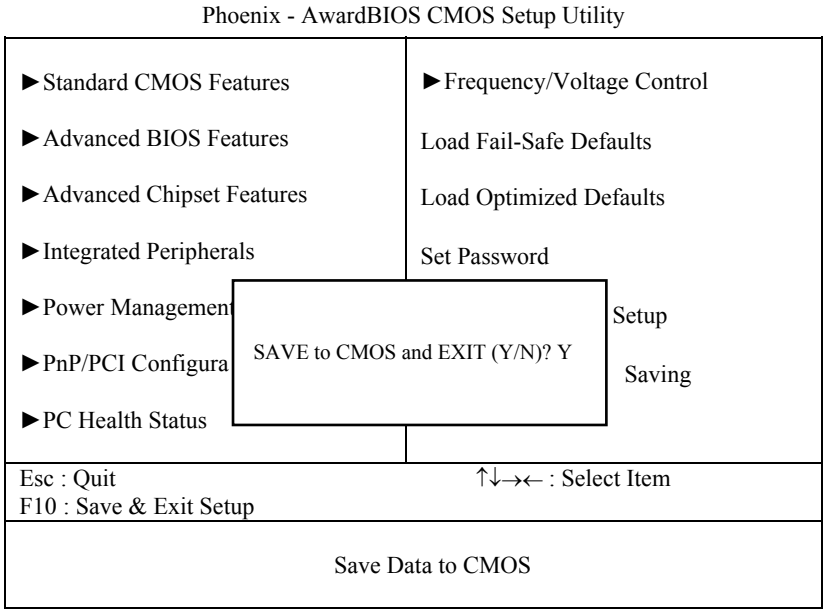
To disable the password, select this function (do not enter any key when you are prompt to enter a password), and press the <Enter> key and a message will appear at the center of the screen:

PASSWORD DISABLED!!! Press any key to continue...

Press the < Enter > key again and the password will be disabled. Once the password is disabled, you can enter Setup freely.

4-14. SAVE & EXIT SETUP

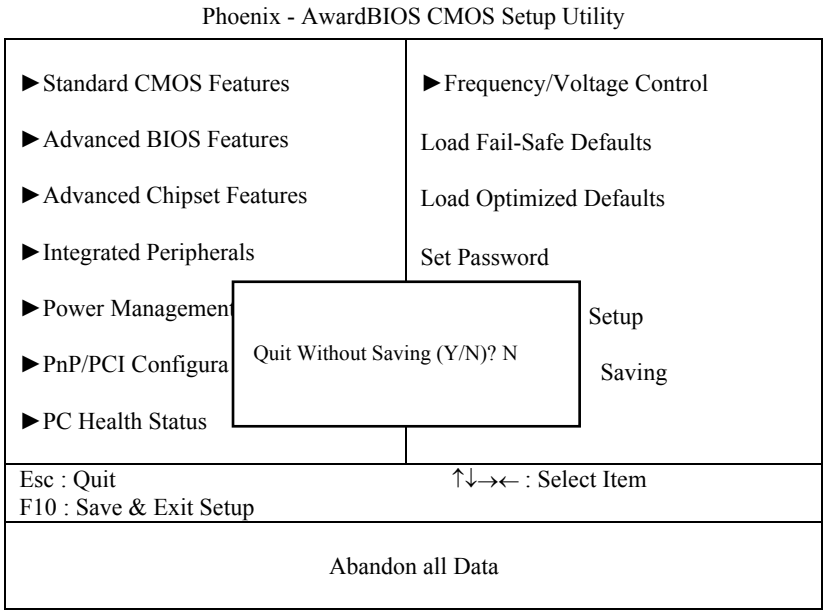
After you have completed adjusting all the settings as required, you must remember to save these setting into the CMOS RAM. To save the settings, select "SAVE & EXIT SETUP" and press <Enter>, a display will be shown as follows:



When you confirm that you wish to save the settings, your system will be automatically restarted and the changes you have made will be implemented. You may always call up the setup program at any time to adjust any of the individual items by pressing the <Del> key during boot up.

4-15. EXIT WITHOUT SAVING

If you wish to cancel any changes you have made, you may select the "EXIT WITHOUT SAVING" and the original setting stored in the CMOS will be retained. The screen will be shown as below:



EXPANSION BUS

APPENDIX

A

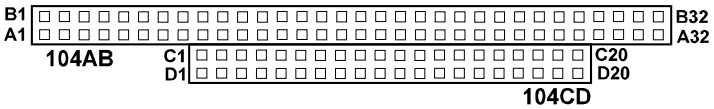
This appendix indicates you the pin assignments.

Section includes:

- PC-104 Connector Pin Assignment
- PCI BUS Pin Assignment

PC-104 CONNECTOR PIN ASSIGNMENT

104AB, 104CD : PC-104 Connector



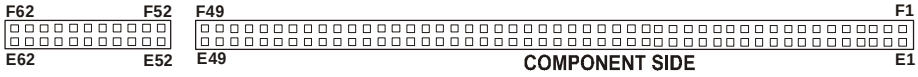
The PC-104 can support multi-pieces of PC-104 modules. It has two connectors : one (104AB) consists of 64 pin; the other one (104CD) consists of 40 pin, both of them are dual-in-line headers

The pin assignments for connector 104AB & 104CD are as follow:

PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
A1	IOCHK	B1	GND	C1	GND	D1	GND
A2	D7	B2	REST	C2	SBHE	D2	MEMCS16
A3	D6	B3	VCC	C3	LA23	D3	IOCS16
A4	D5	B4	IRQ9	C4	LA22	D4	IRQ10
A5	D4	B5	-5V	C5	LA21	D5	IRQ11
A6	D3	B6	DRQ2	C6	LA20	D6	IRQ12
A7	D2	B7	-12V	C7	LA19	D7	IRQ15
A8	D1	B8	OWS	C8	LA18	D8	IRQ14
A9	D0	B9	+12V	C9	LA17	D9	DACK0
A10	IOCHRDY	B10	GND	C10	MEMR	D10	DRQ0
A11	AEN	B11	SMEMW	C11	MEMW	D11	DACK5
A12	A19	B12	SMEMR	C12	D8	D12	DRQ5
A13	A18	B13	IOW	C13	D9	D13	DACK6
A14	A17	B14	IOR	C14	D10	D14	DRQ6
A15	A16	B15	DACK3	C15	D11	D15	DACK7
A16	A15	B16	DRQ3	C16	D12	D16	DRQ7
A17	A14	B17	DACK1	C17	D13	D17	VCC
A18	A13	B18	DRQ1	C18	D14	D18	MASTER
A19	A12	B19	REFRESH	C19	D15	D19	GND
A20	A11	B20	CLK	C20	KEY PIN	D20	GND
A21	A10	B21	IRQ7				
A22	A9	B22	IRQ6				
A23	A8	B23	IRQ5				
A24	A7	B24	IRQ4				
A25	A6	B25	IRQ3				
A26	A5	B26	DACK2				
A27	A4	B27	TC				
A28	A3	B28	BALE				
A29	A2	B29	VCC				
A30	A1	B30	OSC				
A31	A0	B31	GND				
A32	GND	B32	GND				

PCI BUS PIN ASSIGNMENT

The PCI-BUS edge connector is divided into two sets: one consists of 98-pin; the other consists of 22-pin. The pin assignments are as follows :



F		E		F		E	
PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
F1	-12V	E1	TRST#	F31	+3.3V	E31	AD18
F2	TCK	E2	+12V	F32	AD17	E32	AD16
F3	GND	E3	TMS	F33	C/BE2#	E33	+3.3V
F4	TDO	E4	TDI	F34	GND	E34	FRAME#
F5	+5V	E5	+5V	F35	IRDY#	E35	GND
F6	+5V	E6	INTA#	F36	+3.3V	E36	TRDY#
F7	INTB#	E7	INTC#	F37	DEVSEL#	E37	GND
F8	INTD#	E8	+5V	F38	GND	E38	STOP#
F9	REQ3#	E9	CLKC	F39	LOCK#	E39	+3.3V
F10	REQ1#	E10	+5V(I/O)	F40	PERR#	E40	SDONE
F11	GNT3#	E11	CLKD	F41	+3.3V	E41	SB0#
F12	GND	E12	GND	F42	SERR#	E42	GND
F13	GND	E13	GND	F43	+3.3V	E43	PAR
F14	CLKA	E14	GNT1#	F44	C/BE1#	E44	AD15
F15	GND	E15	RST#	F45	AD14	E45	+3.3V
F16	CLKB	E16	+5V(I/O)	F46	GND	E46	AD13
F17	GND	E17	GNT0#	F47	AD12	E47	AD11
F18	REQ0#	E18	GND	F48	AD10	E48	GND
F19	+5V(I/O)	E19	REQ2#	F49	GND	E49	AD09
F20	AD31	E20	AD30	F52	AD08	E52	C/BE0#
F21	AD29	E21	+3.3V	F53	AD07	E53	+3.3V
F22	GND	E22	AD28	F54	+3.3V	E54	AD06
F23	AD27	E23	AD26	F55	AD05	E55	AD04
F24	AD25	E24	GND	F56	AD03	E56	GND
F25	+3.3V	E25	AD24	F57	GND	E57	AD02
F26	C/BE3#	E26	GNT2#	F58	AD01	E58	AD00
F27	AD23	E27	+3.3V	F59	+5V(I/O)	E59	+5V(I/O)
F28	GND	E28	AD22	F60	ACK64#	E60	REQ64#
F29	AD21	E29	AD20	F61	+5V	E61	+5V
F30	AD19	E30	GND	F62	+5V	E62	+5V

TECHNICAL SUMMARY

APPENDIX

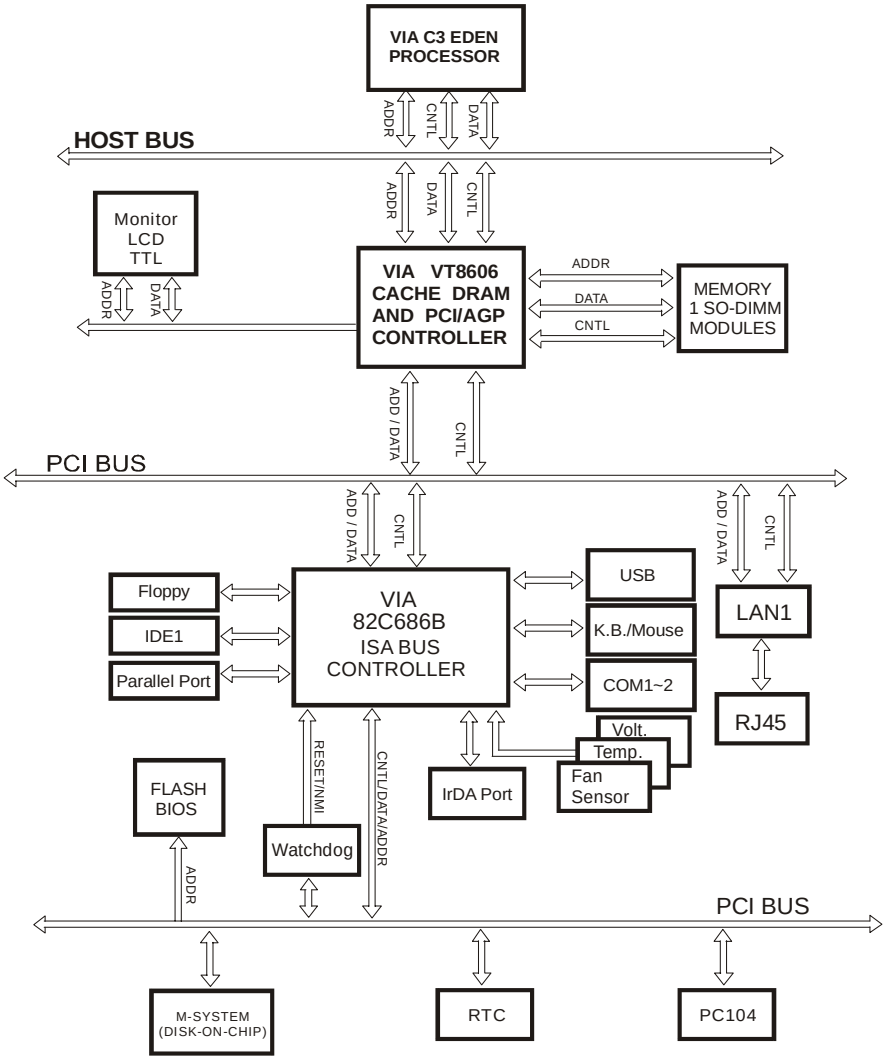
B

This section introduce you the maps concisely.

Section includes:

- Block Diagram
- Interrupt Map
- RTC & CMOS RAM Map
- Timer & DMA Channels Map
- I / O & Memory Map

BLOCK DIAGRAM



INTERRUPT MAP

IRQ	ASSIGNMENT
0	System TIMER
1	Standard 101/102-key or Microsoft Natural PS/2 Keyboard
2	Cascade for IRQ 8-15
3	Serial port 2
4	Serial port 1
5	Available
6	Floppy
7	Parallel port 1
8	RTC clock
9	ACPI
10	Available
11	Available
12	PS/2 Mouse
13	Numeric data processor
14	IDE1
15	Available

RTC & CMOS RAM MAP

CODE	ASSIGNMENT
00	Seconds
01	Second alarm
02	Minutes
03	Minutes alarm
04	Hours
05	Hours alarm
06	Day of week
07	Day of month
08	Month
09	Year
0A	Status register A
0B	Status register B
0C	Status register C
0D	Status register D
0E	Diagnostic status byte
0F	Shutdown byte
10	Floppy Disk drive type byte
11	Reserve
12	Hard Disk type byte
13	Reserve
14	Equipment byte
15	Base memory low byte
16	Base memory high byte
17	Extension memory low byte
18	Extension memory high byte
30	Reserved for extension memory low byte
31	Reserved for extension memory high byte
32	Date Century byte
33	Information Flag
34-3F	Reserve
40-7f	Reserved for Chipset Setting Data

TIMER & DMA CHANNELS MAP

Timer Channel Map :

Timer Channel	Assignment
0	System timer interrupt
1	DRAM Refresh request
2	Speaker tone generator

DMA Channel Map :

DMA Channel	Assignment
0	Available
1	Available / Sound Blaster
2	Floppy
3	Available / ECP
4	Cascade for DMA controller 1
5	Available
6	Available
7	Available

I/O & MEMORY MAP

Memory Map :

MEMORY MAP	ASSIGNMENT
0000000-009FFFF	System memory used by DOS and application
00A0000-00BFFFF	Display buffer memory for VGA/ EGA / CGA / MONOCHROME adapter
00C0000-00DFFFF	Reserved for I/O device BIOS ROM or RAM buffer.
00E0000-00EFFFF	Reserved for PCI device ROM
00F0000-00FFFFF	System BIOS ROM
0100000-FFFFFFF	System extension memory

I/O Map :

I/O MAP	ASSIGNMENT
000-00F	Direct memory access controller
000-CF7	PCI bus
010-01F	Motherboard resources
020-021	Programmable interrupt controller
022-03F	Motherboard resources
040-043	System timer
044-05F	Motherboard resources
060-060	Standard 101/102-key or Microsoft Natural PS/2 Keyboard
061-061	System speaker
062-063	Motherboard resources
064-064	Standard 101/102-key or Microsoft Natural PS/2 Keyboard
065-06F	Motherboard resources
070-073	System CMOS/real time clock
074-07F	Motherboard resources
080-090	Direct memory access controller
091-093	Motherboard resources
094-09F	Direct memory access controller
0A0-0A1	Programmable interrupt controller
0A2-0BF	Motherboard resources
0C0-0DF	Direct memory access controller
0E0-0EF	Motherboard resources
0F0-0FF	Numeric data processor
1F0-1F7	Primary IDE Channel

274-277	ISAPNP Read Data Port
279-279	ISAPNP Read Data Port
2F8-2FF	Communications Port(COM2)
378-37F	Printer Port (LTP1)
3B0-3BB	S3 Graphics Twister
3B0-3BB	VIA Tech CPU to AGP Controller
3C0-3DF	S3 Graphics Twister
3C0-3DF	VIA Tech CPU to AGP Controller
3F0-3F5	Standard floppy disk controller
3F6-3F6	Primary IDE Channel
3F7-3F7	Standard floppy disk controller
3F8-3FF	Communications Port (COM1)
4D0-4D1	Motherboard resources
A79-A79	ISAPNP Read Data Port
D00-FFF	PCI bus
100-FFF	PCI bus
010-FFF	PCI bus
080-FFF	PCU bus
000-00F	VIA Bus Master IDE Controller
400-41F	VIA Rev 5 or later USB Universal Host Controller
800-81F	VIA Rev 5 or later USB Universal Host Controller
800-8FF	Realtek RTL8139 Family PCI Fast Ethernet NIC #2

TROUBLE-SHOOTING

APPENDIX

C

This section outlines the error messages that may occur when you operate the system. It also gives you some tips on how to solve the problems.

Section includes:

- Troubleshooting for Error Messages
- Troubleshooting for POST Code

TROUBLESHOOTING FOR ERROR MESSAGE

The following information inform you the error messages and the trouble shooting. Please adjust your systems according to the messages below. And make sure all the components and connectors are in proper position and firmly attached. If the errors still encountered, please contact with your distributor for maintenance.

POST BEEP :

Currently there are two kinds of beep codes in BIOS. The one code indicates that a video error has occurred and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by three short beeps. The other one code indicates that your DRAM error has occurred. This beep code consists of a single long beep repeatedly.

CMOS BATTERY FAILURE :

When the CMOS battery is out of work or has run out, the user has to replace the whole unit.

CMOS CHECKSUM ERROR :

This error informs you that the CMOS is corrupted. When the battery runs weak, this situation might happen. Please check the battery and change a new one when necessary.

DISPLAY SWITCH IS SET INCORRECTLY :

Display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different setting than indicated in Setup. Determine which setting is correct, and then either turn off the system and change the jumper, or enter Setup and change the video selection.

DISK BOOT FAILURE:

When you can‘t find the boot device, insert a system disk into Drive A and press < Enter >. Make sure both the controller and cables are all in proper positions, also make sure the disk is formatted correct device. Then reboot the system.

DISKETTE DRIVES OR TYPES MISMATCH ERROR :

When the diskette drive type is different from CMOS, please run setup or configure the drive again.

ERROR ENCOUNTERED INITIALIZING HARD DRIVE :

When you can't initialize the hard drive. Assure the adapter is installed correctly and all cables are correctly and firmly attached. Also be sure the correct hard drive type is selected in Setup.

ERROR INITIALIZING HARD DISK CONTROLLER :

When this error occurs. Be sure the cord is exactly installed in the bus. Make sure the correct hard drive type is selected in Setup. Also check whether all of the jumpers are set correctly in the hard drive.

FLOPPY DISK CONTROLLER ERROR OR NO CONTROLLER PRESENT :

When you cannot find or initialize the floppy drive controller, please check the controller whether in proper Setup. If there are no floppy drive installed, Ensure the Diskette Drive selection in Setup is set to NONE.

KEYBOARD ERROR OR NO KEYBOARD PRESENT :

When this situation happens, please check keyboard attachment and no keys being pressed during the boot. If you are purposely configuring the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. This will cause the BIOS to ignore the missing keyboard and continue the boot.

MEMORY ADDRESS ERROR :

When the memory address indicates error. You can use this location along with the memory map for your system to find and replace the bad memory chips.

MEMORY SIZE HAS CHANGED :

Memory has been added or removed since the last boot. In EISA mode use Configuration Utility to re-configure the memory configuration. In ISA mode enter Setup and enter the new memory size in the memory fields.

MEMORY VERIFYING ERROR :

It indicates an error verifying a value already written to memory. Use the location along with your system's memory map to locate the bad chip.

OFFENDING ADDRESS MISSING :

This message is used in connection with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem cannot be isolated.

REBOOT ERROR :

When this error occurs that requires you to reboot.. Press any key and the system will reboot.

SYSTEM HALTED :

Indicates the present boot attempt has been aborted and the system must be rebooted. Press and hold down the CTRL and ALT keys and press DEL.

TROUBLESHOOTING FOR POST CODES

When you power on your PC, and the screen display nothing. You have to insert the POST Card for test. The address for ISA POST port is 80h. Make sure the card is in correct slot. The lists below indicate you the error messages. Please follow the instruction to adjust your system. If the error still occurred, please contact with your distributor for maintenance.

C0 : Turn off OEM specific cache, shadow.....

03 : Initialize all the standard devices with default values Standard devices includes :
DMA controller (8237).
Programmable Interrupt Controller (8259).
Programmable Interval Timer (8254).
RTC chip.

05 : 1.Keyboard Controller Self-Test.
2.Enable Keyboard Interface.

07 : Verfies CMOS‘s basic R/W functionality.

BE : Program defaults values into chipset according to the MODBINable Chipset Default Table.

C1 : Auto-detection of onboard DRAM & Cache.

C5 : Copy the BIOS from ROM into E0000-FFFFF shadow RAM so that POST will go faster.

08 : Test the first 256K DRAM.

09 : 1. Program the configuration register of Cyrix CPU according to the MODBINable Cyrix Register Table.
2. OEM specific cache initialization (if needed).

0A : 1. Initialize the first 32 interrupt vectors with corresponding Interrupt handlers Initialize INT no from 33-120 with Dummy(Spurious) Interrupt Handler.
2. Issue CPUID instruction to identify CPU type.
3. Early Power Management initialization (OEM specific).

0B : 1.Verify the RTC time is valid or not.
2. Detect bad battery.
3. Read CMOS data into BIOS stack area.
4. PnP initializations including (PnP BIOS only).
-Assign CSN to PnP ISA card.
-Create resource map from ESCD.
5. Assign I/O & Memory for PCI devices (PCI BIOS only).

0C : Initialization of the BIOS Data Area (40 : 0N-40:FF).

0D : 1. Program some of the Chipset's value according to Setup. (Early Setup Value Program).
2. Measure CPU speed for display & decide the system clock speed.
3.Video initialization including Monochrome ,CGA, EGA/VGA. If no display device found, the speaker will beep.

0E : 1. Initialize the APIC (Multi-Processor BIOS only).
2. Test video RAM (If Monochrome display device found).
3. Show messages including :
-Award Logo, Copyright string, BIOS Date code & Part No.
-OEM specific sign on messages.
-Energy Star Loge (Green BIOS only).
-CPU brand, type & speed.
-Test system BIOS checksum (Non-compress Version only).

0F : DMA channel 0 test.

10 : DMA channel 1 test.

11 : DMA page registers test.

14 : Test 8254 Timer 0 Counter2.

15 : Test 8259 interrupt mask bits for channel 1.

16 : Test 8259 interrupt mask bits for channel 2.

19 : Test 8259 functionality.

30 : Detect Base Memory & Extended Memory Size.

31 : 1. Test Base Memory from 256K to 640K.
2. Test Extended Memory from 1M to the top of memory.

32 : 1.Display the Award Plug & Play BIOS Extension message (PnP BIOS only).
2.Program all onboard super I/O chips (if any) including COM ports, LPT ports, FDD port....according to setup value.

3C : Set flag to allow users to enter CMOS Setup Utility.

3D : 1 Initialize Keyboard.
2 Install PS2 mouse.

3E : Try to turn on Level 2 cache.
Note : Some chipset may need to turn on the L2 cache in this stage. But usually, the cache is turn on later in POST 61h.

BF : 1. Program the rest of the Chipset's value according to Setup. (Later Setup Value Program).
2. If auto-configuration is enabled, programmed the chipset with pre-defined value in the MODBINable Auto-Table.

41 : Initialize floppy disk drive controller.

42 : Initialize Hard drive controller.

43 : If it is a PnP BIOS, initialize serial & parallel ports.

45 : Initialize math coprocessor.

4E : If there is any error detected (such as video, kb....), show all the error messages the screen & wait for user to press <F1> key.

4F : 1. If password is needed, ask for password.
2. Clear the Energy Star Logo (Green BIOS only).

50 : Write all CMOS values currently in the BIOS stack area back into the CMOS.

52 :1.Initialize all ISA ROMs.
2. Later PCI initializations (PCI BIOS only).
-assign IRQ to PCI devices.
-initialize all PCI ROMs.
3.PnP Initializations (PnP BIOS only).
-assign I/O, Memory, IRQ & DMA TO PnP ISA devices.
-initialize all PnP ISA ROMs.
4. Program shadows RAM according to Setup settings.
5. Program parity according to Setup setting.
6. Power Management Initialization.
-Enable/Disable global PM.
-APM interface initialization.

53 :1.If it is NOT a PnP BIOS, initialize serial & parallel ports.
2. Initialize time value in BIOS data area by translate the RTC time value into a timer tick value.

60 : Setup Virus Protection (Boot Sector Protection) functionality according to Setup setting.

61 : 1. Try to turn on Level 2 cache.
Note : if L2 cache is already turned on in POST 3D, this part will be skipped.
2. Set the boot up speed according to Setup setting.
3. Last chance for Chipset initialization.
4. Last chance for Power Management initialization (Green BIOS only).
5. Show the system configuration table.

62 : 1.Setup daylight saving according to Setup value.
2.Program the NumLock, typematic rate & typematic speed according to Setup setting.

63 : 1. If there is any changes in the hardware configuration, update the ESCD information (PnP BIOS only).
2. Clear memory that have been used.
3. Boot system via INT 19H.

FF : System Booting. this means that the BIOS already pass the control right to the operating system.

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